

L Number	Hits	Search Text	DB	Time stamp
1	3224	267/64.11-64.28.ccls.	USPAT	2004/07/21 11:25
2	1243	267/33-35.ccls.	USPAT	2004/07/21 11:25
3	4231	267/64.11-64.28.ccls. or 267/33-35.ccls.	USPAT	2004/07/21 11:25
4	204	(267/64.11-64.28.ccls. or 267/33-35.ccls.) and (air or pneumatic or gas) and rod and (bellows or diaphragm) and (absorber or dashpot or strut or hydraulic) and chamber	USPAT	2004/07/21 11:28
5	1		USPAT	2004/07/21 11:33
6	1		USPAT	2004/07/21 11:33
7	1		USPAT	2004/07/21 11:33
8	1		USPAT	2004/07/21 11:33
9	1		USPAT	2004/07/21 11:34
10	1		USPAT	2004/07/21 11:35
11	1		USPAT	2004/07/21 11:36
12	1		USPAT	2004/07/21 11:36
13	1		USPAT	2004/07/21 11:36
14	1		USPAT	2004/07/21 11:37
15	1		USPAT	2004/07/21 11:37
16	1		USPAT	2004/07/21 11:39
17	1		USPAT	2004/07/21 11:39
-	2	(("4613116") or ("6343781")).PN.	USPAT	2004/07/20 16:30
-	1	4613116.uref.	USPAT	2004/07/21 11:25

Office Action Summary	Application No.	Applicant(s)
	10/055,086	SAGATELIAN, ARMAN
	Examiner	Art Unit
	Aaron D Matthew	2114

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 01/22/2002.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-23 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-23 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 22 January 2002 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date 01/22/2002.

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) Notice of Informal Patent Application (PTO-152)
 6) Other: _____.

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details. The language should be clear and concise and should not repeat information given in the title.

2. Claims 1-23 have been examined.

Claim Objections

3. Claim 13 is objected to because of the following informalities: step (c6) is mislabeled as (c5) on line 16. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 12 and 13 recite the limitation "said second state" in lines 11-12, and 18 respectively. The limitation of "resetting said flag so as to indicate a second state" is introduced in claim 11. Since claims 12 and 13 are dependent on claim 10 and not claim 11, there is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-9, 17, and 20-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Grove, (U.S. 4,896,278).

Regarding claim 1, Grove teaches a binary frame image and a method for identifying groups of defect pixels in the image. One of ordinary skill in the art would clearly

recognize that the binary frame image taught by Grove is a bitmap, (note col. 8, lines 29-33), and that the defect pixels are effectively fail bits in said bitmap.

Said method comprises:

- a) finding an available fail bit in the bitmap, (see col. 8, lines 47-50, and 55-57), and assigning it a group label, (in the context of the disclosure in Grove, a fail bit assigned to a group label is inherently added to a cluster list);
- b) finding a first set of available fail bits individually within a prespecified distance from said available fail bit, and adding said first set of available fail bits to said cluster list, (lines 50-52), said prespecified distance herein determined to be "adjacent";
- c) finding additional sets of available fail bits individually within said prespecified distance from individual of said first set of available fail bits or individual of said additional sets of available fail bits, and adding said additional sets of available fail bits to said cluster list so as to identify a cluster of fail bits in said bitmap, (note col. 8, lines 52-55, which states that all of said first set of available fail bits are individually considered in turn, and all unassigned fail bits within a prespecified distance from individual of said individually considered fail bits are added to the cluster list).

Regarding claims 20 and 22, note Figure 1, element 12. It is inherent that the computer used in Grove for processing the method described in reference to claim 1

comprises a memory for storing fail bits in a bitmap, and at least one circuit configured to process said method. It is therefore also inherent that said circuit would comprise a processor programmed to perform functions (a) through (c).

Regarding claim 21, note col. 8, lines 57-62.

Regarding claim 23, it is inherent that the method described in claim 1, being processed in a computer environment, requires computer readable media for storing a program for identifying clusters of fail bits in a bitmap and adapted to interact with a processor to perform said program, wherein said program causes said processor to perform the functions laid out in claim 1..

Regarding claims 2 and 3, as the available fail bits in steps (a) and (b) of claim 1 are expressly stated as being unlabelled, it is inherent that the available fail bits have not already been added to said cluster list, (see col. 8, lines 53-57).

Regarding claim 4, it is inherent that if no first pixel of upper binary state is found in step (a) of claim 1, (col. 8, lines 47-50), there will be no additional adjacent pixels to locate in steps (b) and (c). Therefore, (b) and (c) will not be performed if an available fail bit cannot be found in (a).

Regarding claim 5, see col. 8, lines 57-62.

Regarding claims 6, 7 and 8, as the available fail bits in steps (a) and (b) of claim 5 are expressly stated as being unlabelled, it is inherent that the available fail bits have not already been added to said cluster list, (see col. 8, lines 53-57).

Regarding claim 9, it is inherent that if no first pixel of upper binary state is found in step (a) of claim 1, (col. 8, lines 47-50), there will be no additional adjacent pixels to locate in steps (b) and (c). Therefore, (b) and (c) will not be performed and processing of said bitmap will be terminated, (note also, col. 8, lines 59-62; if no pixels of upper binary state are found, the algorithm will end without having identified a first fail bit).

Regarding claim 17, note col. 7 lines 63-68 and col. 8, line 1. Grove teaches that the clusters of fail bits are constrained to be within a same zone of said bitmap as said available fail bit found in (a) of claim 1. Also note, Figures 4B and 4C.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grove as applied to claim 17 above.

Grove teaches that the clusters of fail bits are constrained to be within a same zone of the bitmap, see again Figures 4B and 4C.

Grove fails to teach that the zone is a half of said bitmap, or a quadrant of said bitmap.

In view of Figure 4B, and the discussion in col. 7, lines 63-68 and col. 8, line 1, it would have been obvious to one of ordinary skill in the art, that the zone discussed in claim 17 could have been any rational portion of the bitmap, depending on the composition of the device under test. Grove recognizes that certain regions of a test part could have properties that are unique and constant to that region. Therefore, one of ordinary skill in the art would have found it immediately obvious that such zones could be found in $\frac{1}{2}$ or $\frac{1}{4}$ divisions of the device under test, and, consequently, a half or a quadrant of the bitmap.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grove as applied to claim 1 above, and further in view of Kulkarni et al, (U.S. 5,991,699).

Regarding claim 14, Grove fails to teach that said bitmap is organized by X-Y coordinates, and that said prespecified distance is measured by a square root of $[(X2-X1)^2+(Y2-Y1)^2]$, where X1,Y1 and X2,Y2 are coordinates associated with said available fail bit and individual of said first set of available fail bits respectively.

Kulkarni et al teaches a method of identifying clusters of defect data in a bitmap, (see col. 3, lines 63-65, and Figures 6a-d). Kulkarni et al further teaches that the bitmap is organized by X-Y coordinates, and that the prespecified distance measure, Ct, between fail bits on the bitmap is measured by a square root of $[(X2-X1)^2+(Y2-Y1)^2]$, (see col. 15, lines 15-26).

Kulkarni et al and Grove are considered analogous art because they both teach a method of identifying clusters of defect bits in a bitmap.

The equation taught by Kulkarni et al for measuring the distance between two fail bits on a bitmap is well known in the art as the Euclidean distance, and is a very common distance measure between two points in a two-dimensional space. One of ordinary skill in the art would have clearly recognized the usefulness of the Euclidean distance in an application of clustering fail bits as disclosed in Kulkarni et al, and would have been properly motivated to include the distance measure as a means of determining relative adjacencies in the method taught by Grove.

Moreover, one of ordinary skill in the art would have considered it obvious to organize said bitmap by X-Y coordinates to facilitate such a measurement.

8. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grove as applied to claim 1 above, and further in view of Kulkarni et al, and StatSoft, Inc.

Regarding claims 15-16, Grove in view of Kulkarni et al teaches a method wherein said bitmap is organized by X-Y coordinates, (note discussion pertaining to claim 14 above).

Grove in view of Kulkarni et al fails to teach that the prespecified distance between two fail bits in a bitmap is measured by either: a sum of $\text{abs}(X_2-X_1)$ and $\text{abs}(Y_2-Y_1)$, or a maximum of $[\text{abs}(X_2-X_1), \text{abs}(Y_2-Y_1)]$.

StatSoft, Inc. teaches several two-dimensional distance measurement equations that are well known in the art. Both of the formulas, a sum of $\text{abs}(X_2-X_1)$ and $\text{abs}(Y_2-Y_1)$, and a maximum of $[\text{abs}(X_2-X_1), \text{abs}(Y_2-Y_1)]$, are included in the disclosure under the heading, "Distance Measures". They are labeled, "City-block (Manhattan) distance", and "Chebychev distance", respectively.

Grove, Kulkarni et al, and StatSoft, Inc. are considered analogous art because they all teach methods of identifying clusters of data based on spatial relationships.

One of ordinary skill in the art would have clearly recognized that the equations taught by StatSoft, Inc. are well known and of common use in the art. Each offers a particular advantage, identified by StatSoft, Inc, depending upon how one would prefer to determine the distance between two points in a two-dimensional space. Therefore, one of ordinary skill in the art would have considered it obvious at the time of applicant's invention to use either of the above equations in determining said prespecified distance between fail bits in a bitmap, and would have been motivated to do so based on a preference of how a maximum distance between bits in a cluster of fail bits should be defined.

9. Claims 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grove as applied to claim 1 above, and further in view of official notice.

Regarding claims 10 and 11, Grove teaches that said available fail bit will be considered in turn, (col. 8, lines 47-48). This implies that there is some means present of identifying which fail bit is currently being "considered in turn," or being "in a first state".

Grove fails to teach a method according to claim 1, wherein (b) further comprises setting a flag associated with said available fail bit to indicate a first state. Grove

also fails to teach that said flag is reset to indicate a second state after finding all of said first set of available fail bits.

Examiner takes official notice that one of ordinary skill in the art would clearly recognize the common usage of flags in identifying an object that is to be processed in a computer algorithm. This is a common means of determining the state of an object, which would be necessary to enable the algorithm described in Grove, (col. 8, lines 45-64). It would not be possible, under the constraints of the algorithm, to identify fail bits adjacent to a given fail bit, unless said given fail bit was indicated in some way as the current fail bit. One of ordinary skill in the art would have considered it obvious to include a flag for identifying said available fail bit disclosed in Grove, as being in a first state in which it is "considered in turn". Moreover, once all individuals of said set of available fail bits have been found adjacent to the current fail bit, one of ordinary skill in the art would have considered it obvious to reset said flag, so as to enable each of the second group of pixels to be considered in turn, (col. 8, lines 52-53).

Regarding claim 12, note col. 8, lines 50-52, in which each available fail bit within said prespecified distance from the current available fail bit is given a label of "1" in order to be considered in turn after all available fail bits surrounding the current available fail bit have been found. If no additional fail bits are found surrounding the

current available fail bit, then the finding of said first set of available fail bits is complete and the flag associated with said current available fail bit is reset to indicate this second state.

Regarding claim 13, the steps described therein are inherent to the algorithm referred to in the discussion of claim 10, note the following:

- For (c1), note col. 8, lines 52-53, in which each of the second group of pixels is considered in turn. This inherently requires that said cluster list is checked for a fail bit added thereto and having an associated flag that is set to indicate said first state;
- For (c2), note col. 8, lines 55-57, in which the next group of pixels is assigned a new cluster label if no fail bit is found in (c1);
- For (c3), note again, col. 8, lines 52-53. When a pixel is considered in turn, it is considered as the current fail bit.
- For (c4) and (c5), note col. 8, lines 53-55, in which all unassigned fail bits within a prespecified distance from the current fail bit in (c3) are found and added to the cluster list.
- For (c6) it is inherent that, as each fail bit is being considered in turn, if no such another available fail bit is found in (c4), the current fail bit should no longer be considered the current fail bit, and processing should continue at (c1). As discussed above regarding claims 10 and 11, this determination is made by resetting the flag associated with the current fail bit.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron D Matthew whose telephone number is (703) 605-1211. The examiner can normally be reached on Mon-Fri, from 7:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert W Beausoliel can be reached on (703) 305-9713. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Aaron D Matthew
Examiner
Art Unit 2114

ADM


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